

amount reveals the effect of a given test compound on the biological or chemical process; and

- c. assaying for ligand-component association in the reaction vessels.

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83. A method for screening one or more test compounds; said method comprising steps of:

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- a. introducing into each of a plurality of reaction vessels:
a plurality of cells; and
one or more test compounds whose effect on an intracellular biological or chemical process is to be evaluated;
- b. introducing into each of the reaction vessels a first ligand characterized by an ability to associate intracellularly with a biological component whose presence or amount reveals the effect of a given test compound on the biological or chemical process;
- c. assaying for association between the first ligand and the component in the reaction vessels;
- d. repeating step a;
- e. introducing into each of the reaction vessels a second ligand characterized by an ability to associate intracellularly with a biological component whose presence or amount reveals the effect of a given test compound on the biological or chemical process;
- f. assaying for association between the second ligand and the component in the reaction vessels;
- g. optionally repeating steps d-f, wherein seconds are thirds; and
- h. retaining the information as a functional fingerprint.

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84. The method of claim 82 or 83 further comprising the step of removing unassociated ligand from each reaction vessel.

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85. The method of claim 82 or 83 wherein the biological component is a direct participant in or a product of the biological or chemical process.

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The method of claim 82 wherein the ligand is an antibody.

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The method of claim 82 wherein each first, second and third ligand is independently an antibody.

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The method of claim 86 or 87 wherein the antibody is conjugated to horseradish peroxidase.

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The method of claim 82 wherein the method further comprises introducing a secondary ligand that binds specifically to said first ligand, and wherein the step of assaying comprises assaying for bound secondary ligand.

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The method of claim 82 wherein the method further comprises introducing a secondary ligand that binds specifically to said first, second or third ligand, and wherein each step of assaying comprises assaying for bound secondary ligand.

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The method of claim 89 or 90 wherein in the step of assaying, the secondary ligand is assayed intracellularly.

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The method of claim 89 or 90 wherein the secondary ligand is an antibody.

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The method of claim 92 wherein the antibody is conjugated to horseradish peroxidase.

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The method of claim 82 or 89 wherein the step of assaying utilizes a detection technique selected from the group consisting of: chemiluminescence, fluorescence, phosphorescence, radioactivity, colorimetry, Ultra-Violet spectroscopy, and Infra-Red spectroscopy.

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The method of claim ~~83~~ or ~~90~~ ^{58 65} wherein each step of assaying independently utilizes a detection technique selected from the group consisting of: chemiluminescence, fluorescence, phosphorescence, radioactivity, colorimetry, Ultra-Violet spectroscopy, and Infra-Red spectroscopy.

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The method of claim ~~82~~ or ~~83~~ ^{57 58} wherein, in the step of introducing the cells in each of the plurality of reaction vessels, the cells adhere to the reaction vessel surface.

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The method of claim ~~82~~ or ~~83~~ ^{57 58} further comprising the step of providing one or more solutions containing at least one reagent known to exert an effect on the intracellular biological or chemical process.

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The method of claim ~~97~~ ⁷² further comprising the step of contacting the cells with the solution under suitable conditions for the reagent to exert an effect on the intracellular biological or chemical process in the cells.

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The method of claim ~~98~~ ⁷³ wherein the intracellular biological or chemical process is DNA synthesis.

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The method of claim ~~98~~ ⁷³ wherein the reagent is 5-bromodeoxyuridine.

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The method of claim ~~82~~ or ~~83~~ ^{57 58} wherein the intracellular biological or chemical process is a covalent modification of an intracellular component.

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The method of claim ~~101~~ ⁷⁶ wherein the covalent modification is an intracellular biological reaction.

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The method of claim ~~102~~ ⁷⁷ wherein the intracellular biological reaction is nucleic acid synthesis, protein cleavage, peptide cleavage, carbohydrate addition, carbohydrate

cleavage, metabolism of cellular components, synthesis of cellular components or an intracellular biochemical reaction.

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104. The method of claim 101 wherein the covalent modification is a post-translational event.

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105. The method of claim 104 wherein the post-translational event is protein glycosylation, methylation, lipidation, isoprenylation, ubiquitination, phosphorylation or acetylation.

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106. The method of claim 104 wherein the ligand interacts with the post-translationally modified intracellular component.

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107. The method of claim 101 wherein the intracellular component is a protein.

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108. The method of claim 82 or 83 wherein the cells are from the same cell -line.

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109. The method of claim 82 or 83 wherein the cells are from a plurality of cell -lines.

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110. The method of claim 82 or 83 wherein at least a subset of the cells comprises a eukaryotic cell.

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111. The method of claim 82 or 83 wherein at least a subset of the cells comprises a mammalian cell.

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112. The method of claim 82 or 83 wherein at least a subset of the cells comprises a human cell.

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113. The method of claim 82 or 83 wherein the test compounds are from a natural, biological or synthetic source, or combination thereof.

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114. The method of claim ~~82~~ or ~~83~~ wherein the test compounds are from a combinatorial library.

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115. The method of claim ~~82~~ or ~~83~~ wherein the test compounds are covalently bound on a solid support, the method further comprising the step of dissociating the test compounds from the solid support.

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116. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are designed to receive a volume of liquid less or equal to approximately 200 microliters.

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117. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are designed to receive a volume of liquid less or equal to approximately 50 microliters.

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118. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are designed to receive a volume of liquid less or equal to approximately 2 microliters.

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119. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are designed to receive a volume of liquid less or equal to approximately 250 nanoliters.

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120. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are arranged with sufficient density that individual vessels are separated from one another by no more than about 5 millimeters.

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121. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are arranged with sufficient density that individual vessels are separated from one another by no more than about 2 millimeters.

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122. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are arranged with sufficient density that individual vessels are separated from one another by no more than about 1 millimeter.

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123. The method of claim ~~82~~ or ~~83~~ wherein the reaction vessels are arranged with sufficient density that individual vessels are separated from one another by no more than about 0.25 millimeter.

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124. The method of claim ~~82~~ or ~~83~~ wherein the number of reaction vessels is greater than or equal to approximately 384 and the reaction vessels occupy a surface smaller than or equal to approximately $128 \times 86 \text{ mm}^2$.

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125. The method of claim ~~82~~ or ~~83~~ wherein the number of reaction vessels is greater than or equal to approximately 1500 and the reaction vessels occupy a surface smaller than or equal to approximately $128 \times 86 \text{ mm}^2$.

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126. The method of claim ~~82~~ or ~~83~~ wherein the number of reaction vessels is greater than or equal to approximately 6000 and the reaction vessels occupy a surface smaller than or equal to approximately $128 \times 86 \text{ mm}^2$.

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127. The method of claim ~~82~~ or ~~83~~ wherein in the step of introducing the test compounds into the plurality of reaction vessels, the test compounds are the same or different.

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128. The method of claim ~~82~~ or ~~83~~ wherein in the step of introducing the test compounds into the plurality of reaction vessels, each reaction vessel contains one test compound.

Remarks

Claims 39-56 are currently pending in the subject application. Claims 39, 40, 52 and 54-56 were withdrawn from consideration by the Examiner under 37 C.F.R. § 1.142(b) as being drawn to a non-elected invention. Claims 41-51 and 53 stand rejected for lack of written description, lack of enablement and/or obviousness. Each of the rejections has been addressed individually in a Response to Final Office Action filed March 8, 2002. However, all of the previously-pending claims have been cancelled. Therefore, Applicant addresses the rejections in